

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-67. **(Canceled)**

68. **(New)** A method of manufacturing a fiber reinforced cement composite material, consisting of:

providing unbleached cellulose fibers individualized to about 500 CSF;

treating at least a portion of the cellulose fibers in solution with about 10% by fiber mass with one or more sizing agents in the presence of water or an organic solvent for about 1 hour at ambient temperature at 1 atm and 4% pulp consistency, wherein the sizing agent comprises a hydrophilic functional group and a hydrophobic functional group, wherein the hydrophilic group chemically bonds to at least some of the hydrophilic sites on inner and outer surfaces of the fibers to form sized fibers, wherein the sizing agent substantially blocks the hydrophilic sites, thereby reducing the fibers' affinity toward water;

mixing about 8% by weight sized fibers with about 35% cementitious binder and about 57% ground silica to form a fiber cement mixture;

forming the fiber cement mixture into a fiber cement article of a pre-selected shape and size;

precuring the fiber cement article for about 8 hours at ambient temperature so as to form the fiber reinforced composite building material; and

autoclaving the fiber cement article for about 12 hours at about 180° C.

69. **(New)** A method of manufacturing a fiber reinforced cement composite material, consisting of:

providing unbleached cellulose fibers individualized to about 500 CSF;

treating at least a portion of the cellulose fibers in solution with about 5 % by fiber mass with one or more sizing agents in the presence of water or an organic solvent for about 30 minutes at ambient temperature at 1 atm and at 4% pulp consistency, wherein the sizing agent comprises a hydrophilic functional group and a hydrophobic functional group, wherein the hydrophilic group chemically bonds to at least some of the hydrophilic sites on inner and outer surfaces of the fibers to form sized fibers, wherein the sizing agent substantially blocks the hydrophilic sites, thereby reducing the fibers' affinity toward water;

mixing about 8% by weight sized fibers with about 35% cementitious binder and about 57% ground silica to form a fiber cement mixture;

forming the fiber cement mixture into a fiber cement article of a pre-selected shape and size; and

drying said article to a density of 1.3 g/cm³.

70. **(New)** A method of manufacturing a fiber reinforced cement composite material, consisting of:

providing unbleached cellulose fibers individualized to about 450 CSF;

treating at least a portion of the cellulose fibers in solution with about 10% by fiber mass with one or more sizing agents in the presence of water or an organic solvent for about 1 hour at ambient temperature at 1 atm and at 30% pulp consistency, wherein the sizing agent comprises a hydrophilic functional group and a hydrophobic functional group, wherein the hydrophilic group chemically bonds to at least some of the hydrophilic sites on inner and outer surfaces of the fibers to form sized fibers, wherein the sizing agent substantially blocks the hydrophilic sites, thereby reducing the fibers' affinity toward water;

mixing about 8% by weight sized fibers with about 35% cementitious binder and about 57% ground silica to form a fiber cement mixture;

forming the fiber cement mixture into a fiber cement article of a pre-selected shape and size; and

drying said article to a density of 1.3 g/cm³.

71. (New) A method of manufacturing a fiber reinforced cement composite material, consisting of:

providing bleached cellulose fibers individualized to about 500 CSF;

treating at least a portion of the cellulose fibers with about 5% by fiber mass with a sizing agent consisting essentially of n-octyltriethoxysilane by spraying said bleached cellulose fibers at ambient temperature with said sizing agent,

mixing about 10% by weight sized fibers with about 39% cementitious binder and about 39% ground silica, about 10% of at least one density modifier, and about 1.5% additives, to form a fiber cement mixture;

extruding the fiber cement mixture to a fiber cement article of a pre-selected shape and size;

curing the fiber cement article for about 24 hours at about 180° C, the article having a density of about 0.9 g/cm³.

72. (New) A method of manufacturing a fiber reinforced cement composite material, consisting of:

providing bleached cellulose fibers individualized to about 400 CSF and a 4% consistency;

treating at least a portion of the cellulose fibers with about 10% by fiber mass with a sizing agent consisting essentially of n-octyltriethoxysilane at about 30 C under 1 atm with said sizing agent,

mixing about 7% by weight sized fibers with about 30% cementitious binder and about 63% ground silica to form a fiber cement mixture;

forming the fiber cement mixture into a fiber cement article of a pre-selected shape and size; and

precurcuring the fiber cement article for about 8 hours at ambient temperature; and curing the fiber cement article for about 12 hours at about 180° C, the article having a density of about 1.3 g/cm³.